CLAIMS

1/ A safety assembly for a prefilled syringe (S) for injecting liquid, the syringe comprising a tubular body (K) forming a reservoir for the liquid, carrying a needle (A) for injecting the liquid, and having a plunger (P) mounted in the body (K) to be movable between a ready position and an end-of-injection position, the body (K) of the syringe having a proximal end provided with a flange (CL), the assembly further comprising:

a tubular sheath (1) in which the body (K) of the syringe is designed to be housed in axially displaceable manner between an active position in which the needle (A) projects through a distal end of the sheath (1) and a protection position in which the needle (A) is retracted inside the sheath (1);

resilient return means (R) for urging the body (K) towards its protection position; and

locking means (6; 33, 34) for preventing the body (K) from moving relative to the sheath (1) in the active position by opposing the resilient force of the return means, said locking means being released by release means (8) when the plunger (P) is in its end-of-injection position,

the locking means comprising a seat (4E) against which the flange (CL) bears, which seat is formed in a proximal end of the sheath (1), and also comprising retractable means (6; 33, 34) for clamping the flange (CL) against the seat (4E), said means being carried by said proximal end of the sheath (1); and

the retractable clamping means comprising at least one retractable catch (6; 33, 34),

the assembly being characterized in that the means for releasing the locking means comprise a cap (8) mounted to slide axially on the proximal end of the sheath (1) between a ready position and a position for retracting the clamping catch (6; 33, 34), the cap (8) being designed to be secured to the plunger (P) at least

during a portion of the displacement stroke of the plunger (P) from its ready position to its end-of-injection position.

2/ An assembly according to claim 1, characterized in that the sheath (1) carries external retention means (1E; 15) for being held by the fingers of a user to inject the liquid by moving a drive end (PE) of the plunger axially towards the retention means (1E; 15).

3/ An assembly according to claim 2, characterized in that the retention means of the sheath (1) comprise two substantially diametrically opposite fins or lugs (15).

4/ An assembly according to claim 2, characterized in that the retention means comprise a shoulder (1E) formed on the outside surface of the sheath (1).

5/ An assembly according to any preceding claim, characterized in that the means for resiliently urging the body (K) of the syringe into the protection position comprise a thrust spring (R) designed to bear both against the flange (CL) of the body (K) of the syringe and also against an internal bearing shoulder (3E) formed in the sheath (1) between the bearing shoulder (4E) for the flange and the distal end of the sheath (1).

6/ An assembly according to any preceding claim, characterized in that the cap (8) has means for securing it to the plunger (P).

7/ An assembly according to any preceding claim, characterized in that the cap (8) and the proximal end of the sheath comprise complementary means (7, 11; 38, 39, 47) for limiting the stroke of the cap (8) in opposition to the resilient force of the means for returning the

body (K) after the locking means (6; 33, 34) have been released.

8/ An assembly according to claim 7, characterized in that the complementary means for limiting the stroke of the cap comprise complementary annular shoulders (7, 11) forming abutments that are provided on the sheath (1) and the cap (8).

9/ An assembly according to claim 7, characterized in that the complementary means for limiting the stroke of the cap comprise complementary snap-fastening means (38, 39, 47) carried by the cap (8) and the sheath (1).

10/ An assembly according to any preceding claim, characterized in that the sheath (1) and the cap (8) are generally in the form of bodies of revolution and have complementary means (13, 13A; 15, 41, 42) for preventing relative rotation between each other.

11/ An assembly according to claim 10, characterized in that the complementary means for preventing relative rotation of the sheath and the cap comprise at least one longitudinal groove (13) formed in the cap (8) and co-operating with a corresponding finger (13A) secured to the sheath (1).

12/ An assembly according to claims 3 and 10 taken together, characterized in that the complementary means for preventing relative rotation of the sheath and the cap comprise at least one axial slot (41, 42) formed in the cap (8) and co-operating with a fin (15).

13/ An injection device comprising a prefilled syringe (S) for injecting liquid, the syringe comprising a tubular body (K) forming a reservoir for the liquid, carrying a needle (A) for injecting the liquid, and

having a plunger (P) mounted in the body (K) to be movable between a ready position and an end-of-injection position, and a safety assembly according to any one of claims 1 to 12.